

**NAS5-98156  
Modification 42  
Attachment**

**Consisting of Contract Attachment G "Technical Incentive  
Fee Computation" dated 12/01/00 and containing 5 pages**

# **Attachment G**

## **Technical Incentive Fee Computation**

**December 1, 2000**

## Technical Incentive Fee Computation

These paragraphs describe the computation of the fraction, F, of the part of the Incentive Fee money pool related to the metrics of the PBC part of the contract which will be paid to the contractor each performance evaluation period. F is the product -

$$F = DLF * MBA$$

where DLF, the Data Loss Factor, is

$$DLF = 1.0 - (0.02 * NFL)$$

where NFL is the Number of Files (irretrievably corrupted or) Lost during the evaluation period due to media deterioration, inaccurate record keeping, or the like. NFL will be capped at 25, such that DLF runs only between 1.0 and 0.5.

MBA is Metrics Based Award. It is a weighted average of the numeric evaluation scores for each of the eight work activities of the PBC part of the contract, computed as:

$$MBA = \frac{1}{\sum_{j=1}^8 W_j} * \sum_{j=1}^8 (W_j * S_j)$$

where

$\sum_{j=1}^8$  denotes a summation over the eight work activities

$S_j$  is the score of the j'th work activity

$W_j$  is the weight of the j'th work activity, given by:

<u>Activity</u>	<u>Weight</u>
1. Metrics Tracking	10
2. NSSDC Data Operations	40
3. Information Sys Operations	10
4. Computer Sys Operations	20
5. ROSAT Data Operations	0
6. ASCA Data Operations	0
7. Electronic Handbooks	0
8. Data Systems Development	20

The numeric evaluation scores for each of the work activities are themselves weighted averages of the scores received for the individual relevant metrics, where the scores received for the individual metrics are:

<u>Evaluation</u>	<u>Score</u>
Outstanding	1.0
Passing	0.8
Failing	0.0

The score,  $S_j$ , for the  $j$ 'th work activity is given by

$$S_j = \frac{1}{N_j} * \sum_{i=1}^{N_j} (W_{j,i} * S_{j,i})$$

where

$j$  is the index number for the  $j$ 'th (e.g., 3rd, Information Systems Operations) activity as listed previously

$i$  is the index number for the  $i$ 'th (e.g., 1st) metric related to the  $j$ 'th activity

$N_j$  is the number of metrics associated with the  $j$ 'th activity (e.g.,  $N_3 = 4$ )

$\sum_{i=1}^{N_j}$  denotes a sum over the  $N_j$  metrics related to the  $j$ 'th work activity,

$W_{j,i}$  is the weight of the  $i$ 'th metric relevant to the  $j$ 'th work activity,

$S_{j,i}$  is the score (1.0, 0.8, or 0.0) for the  $i$ 'th metric for the  $j$ 'th work activity.

The weighting for the  $i$ 'th metric relevant to the  $j$ 'th work activity is given parenthetically immediately following the sequence number of the metric in the RFP/SOW.

### **Additional Important Notes**

If the contractor fails to collect and provide the data for the evaluation of a given metric, the metric will be evaluated as failing.

All metrics are evaluated independently; if a performance reduction covered by one metric affects other metrics, all those metrics are correspondingly reduced.

For evaluation periods when no work relevant to the  $i$ 'th metric of the  $j$ 'th work activity is done,  $W_{j,i}$  is set equal to zero in the above algorithm. If no work relevant to an entire work activity is done during an evaluation period (e.g., after ROSAT or ASCA operations cease), then the appropriate weighting in the higher level MBA calculation is set to zero.

See Section G.14.I(b) of the RFP for provisions for special considerations for unusual or unexpected events or circumstances.

Example of Technical Incentive Fee Computation [Note: The following example is based on the unmodified metric structure found in the basic contract.]

Assume that during a given evaluation period, the contractor received "passing" grades for all metrics, except that it received an "outstanding" for the 1st metric of the 2nd work activity (related to rate of ingest of electronically arriving data to NDADS, also called M3) and that it received a "fail" for the 3rd metric of the 4th activity (related to software installations, also called M22). Assume also that during the same period, the contractor lost 5 data files known to exist at NSSDC since contract start.

All the scores for the individual metrics (the  $S_{j,i}$  terms) are 0.8, except that  $S_{2,1}$  is 1.0 and  $S_{4,3}$  is 0.0. In this case, the activity-score,  $S_j$ , will be 0.8 for  $j=1,3,5,6,7$  (i.e., for the 1st, 3rd, 5th, 6th, and 7th activities).

For activity 2, the activity score  $S_2$  will be  $((12*1.0 + (4+4+8+12+8+12+12+8+5+3+5+7)*0.8))/(12+4+4+8+12+8+12+12+8+5+3+5+7) = (12*1.0 + 88*0.8)/100 = 0.824$ .

(The series of numbers are the metric-specific weights, referred to as  $W_{j,i}$  in the algorithm, and listed in the relevant SOW sections.)

For activity 4, the activity score  $S_4$  will be  $((40+20)*0.8 + 40*0.0)/(40+20+40) = (60*0.8 + 0.0)/100 = 0.480$ .

Then the Metrics Based Award, MBA, becomes  $(44*0.824 + 12*0.48 + (4+8+12+12+8)*0.8)/(4+44+8+12+12+12+8) = (37.664+5.76+35.2)/100 = 0.77216$

The data loss factor  $DLF = 1.0 - (0.02*5) = 0.9$

So the final fraction of the Incentive Fee pool to be paid to the contractor is  $DLF*MBA = 0.9*0.77216 = 0.6949$ .

Attachment G  
Appendix 1  
Calculation of Metric M44 for Data Systems Development

For the CCB Action Requests (ARs) to be implemented under the PBC portion of the contract (CLIN 1), M44 will evaluate the performance of the assigned subtask (or entire task if of short duration) according to the following metric. Subtasks typically include (1) the analysis, implementation plan and list of affected CIs, (2) engineering requirements development; (3) design review; (4) test readiness review; and (5) acceptance review and final delivery.

S is the score for Metric 44 for the evaluation period.

n is the number of ARs completed during the evaluation period.

S<sub>i</sub> is the score (outstanding 1.0, passing 0.8, failing 0.0) of the i<sup>th</sup> AR subtask.

D<sub>i</sub> is the scheduled work days associated with the i<sup>th</sup> AR subtask.

W<sub>i</sub> is the weight given to the i<sup>th</sup> AR subtask (1=normal request, 2=critical request).

$$S = \frac{\sum_{i=1}^n (S_i * D_i * W_i)}{\sum_{i=1}^n (D_i * W_i)}$$

### Additional Important Notes

An example of a normal request would be a routine CCB action.

An example of a critical request would be an action affecting current operations or systems availability.

The following example demonstrates the calculation of the score for Metric M44:

AR Number	Description	Scheduled Work Days	Actual Work Days To completion	Weight
1	Correction of Y2K Problem	10	10	2
2	Routine Enhancement	5	6	1
3	Development Phase of New Software	105	98	1

$$\text{Score M44} = ((.8*10*2)+(0*5*1)+(1.0*105*1))/((10*2)+(5*1)+(105*1))=93\%$$

Note that M44 is worth 12 points of the overall PBC score.